Appl. No. 09/456,105
Amdt. dated February 17, 2004
Reply to Office action of December 19, 2003

REMARKS

The Office Action mailed December 19, 2003 has been carefully considered. Reconsideration of this application, in view of the following remarks, is respectfully requested.

Applicants believe that it is appropriate in this instance to submit a Reply after the final Office Action because it is believed that the cited combination of art does not in fact teach the subject invention. Moreover, making the asserted combination would render the invention disclosed in Chang inoperable. In view of the fact that no changes to the claims have been made herein to overcome the cited art, that the cited art in combination does not teach the subject invention, and assuming that the cited art represents the best combination of references available to refute patentability, applicants respectfully request allowance of the claims. Applicants also believe that, at the very least, certain ones of the dependent claims are allowable because the cited art does not teach the limitations in those claims, and an indication of allowable subject matter in the Advisory Action is requested.

The Claims

Claims 7, 13, 15 and 18 – 24 are pending in this application, including independent claims 18, 21 and 24. Claim 23 has been amended to correct an informality: the claim, added in the last Reply, was originally directed to a computer-controlled method in error. It is now properly directed to an apparatus.

Claim Objection

In the Office Action, Claim 23 was objected to because of an error in claim dependency. Claim 23, newly-presented in the prior Reply, was inadvertently directed to a computer-controlled method when it was supposed to be directed to an apparatus. Claim 23 has been amended to correct the error and its claim dependency is correct as originally presented. It is believed that this correction appropriately addresses the objection to the claim raised in the Office Action.

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35 USC § 103

In the Office Action, claims 7, 13, 15 and 18 – 24 were rejected, in paragraph 3, under 35 U.S.C. § 103 as being unpatentable over Chang (US 6,256,398), hereafter Chang, and further in view of Schuessler (US 5,959,285), hereafter Schuessler.

Independent claim 18 is directed to a computer-controlled method for operating on a visible object included in an image disposed on a substrate to produce human-sensible information associated with the visible object. Claim 18 includes a decoding step for decoding the coded embedded data to produce location data indicating the location of the visible object in the image; a retrieving step for retrieving human-sensible information associated with the visible object using the location data; and a producing step for producing the human-sensible information associated with the visible object on an output device.

Independent claims 21 and 24 are respectively directed to an apparatus and a computer program product and include limitations similar to those in claim 18. The discussion below references the features of claim 18 that distinguish over the art of record, but it is understood that the discussion and arguments presented apply equally to claims 21 and 24.

The Office Action acknowledges that Chang does not teach the decoding step of the subject invention. In particular, Chang does not teach decoding the coded embedded data to produce location data indicating the location of the visible object in the image, or retrieving human-sensible information associated with the visible object using the location data. In contrast, the Chang reference teaches a decoding step in which the decoded data (the URL web address data) is used to retrieve the human-sensible information (a display of the web site page found at the URL web address). See, for example, the flowcharts illustrated in Figures 19A and 19B and their accompanying descriptions at columns 18 – 20, which describe the decoding process. ("The glyph image is decoded to recover

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the embedded message (block 1912). To respond, a processor can act upon the decoded, embedded message, e.g., by directing a web browser ... to connect to a URL address which is the embedded message." Col. 19, lines 2 – 9, emphasis added.)

The Schuessler reference is cited for teaching coded embedded data indicating a location of the visible object in the image, at col. 8, lines 39 -41, which reads: "Non (n,k) gray code could be used for encoding the relative spatial positions of the corresponding codewords."

First, the relative spatial position data encoded in the method described in Schuessler, if in fact used, would be encoded in a very visible two-dimensional bar code and not in embedded data of the type used in Chang. The Office Action fails to state why a person of ordinary skill in the art who had the Chang reference in front of him would look to art in the field of visible coded data to find suggestions for applications in the field of embedded data.

In addition, it is respectfully submitted that this brief disclosure of "encoding the relative spatial positions of the codewords" – the only mention of encoding codeword position in the reference – does not teach "location data indicating the location of the visible object in the image" as required by claim 18. This passage does not disclose the encoding of the location in the image on the substrate (paper label) of the two-dimensional bar code symbol in the bar-code symbol itself. See e.g., col. 7, lines 17 – 24 ("... a system may be built for using high density, two dimensional bar code symbols ... created by marking a suitable substrate (e.g., paper) with one or more labels in accordance with the foregoing description.") In fact, while the suggestion is made in Schuessler, it would seem to be a waste of valuable data bandwidth to code the actual location of the visible 2D bar code in the label.

Moreover, there is no disclosure in the Schuessler reference as to what purpose the codeword position data encoded in the 2D bar code symbol would be

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used for. It might be reasonably assumed, though not stated, encoding the relative spatial positions of the codewords would aid in decoding the complex 2D symbol so that each codeword could be found within the symbol. However, this is mere speculation, as no such purpose is stated. In particular, there is simply no mention that this encoded codeword position data would itself be used to perform an operation such as retrieving human-sensible information.

The Office Action states the motivation to combine these two references as follows: "One of ordinary skill in the art would have readily recognized that having the Chang code indicate the location of the visible object would have been beneficial for saving time and energy needed to locate the image." OA, pg. 3. However, there is no claim element in claim 18 or in any of the other claims that requires needing the location of the visible object in the image to actually locate the image. In claim 18, the location of the visible object in the image is used in the retrieving step to obtain the human-sensible information. It is respectfully submitted that the Schuessler reference would have to have some teaching regarding the purpose of encoding the relative spatial positions of the codewords, and in particular, a purpose related to retrieving information from the decoded position data (apart from more decoded data), in order to provide the motivation needed to make the asserted combination. The minimal teaching of encoding spatial positions of codewords in a reference in the field of visible 2D bar codes is an insufficient motivation to make the asserted combination of references.

Moreover, even if one could ascribe a purpose to the encoded spatial position data disclosed in Schuessler, there is simply no explicit suggestion or motivation found in the references for modifying the invention in Chang to encode location data of the message string or other visible object in the image shown in Chang in order to use the location data to retrieve a URL to obtain a page from a web site. The entire purpose of the invention disclosed in Chang is to provide "hot spot" capability to a portable substrate like paper. The URL itself must be encoded in the embedded glyphs, not the location of the message string or other

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image, in order for Chang's invention to work. Thus, even if a person of ordinary skill in the art were to read a purpose into the Schuessler reference, modification of the Chang invention to encode location data would make the invention described in Chang inoperable as Chang intended.

Thus, neither the Chang nor the Schuessler reference alone, or in combination, teach a computer-controlled method for operating on a visible object included in an image disposed on a substrate to produce human-sensible information associated with the visible object that includes the step of receiving image data indicating an image region of the image disposed on the substrate, the image region including the visible object and further including coded embedded data forming a uniform background for the visible object, the coded embedded data indicating a location of the visible object in the image disposed on the substrate, as required by claims 18, 21 and 24.

For the foregoing reasons, is believed that independent claims 18, 21 and 24 are patentably distinct over and are not obvious in view of the Chang and Schuessler disclosures, and are believed to be in condition for allowance. Insofar as claims 7, 13, 15, 19 – 20 and 22 – 23 are concerned, these claims all include the limitations of and depend from now presumably allowable claims 18, 21 and 24, and therefore are also in condition for allowance.

Dependent Claims Contain Allowable Subject Matter

It is respectfully submitted that the Office Action fails to show that the Chang or Schuessler references teach the limitations required by dependent claims 19, 20, 22 and 23. It is respectfully submitted that each of these claims contain allowable subject matter.

Claims 19 and 22 are directed to a computer-controlled method and apparatus respectfully, wherein the coded embedded data is a pattern of glyphs, and wherein the location of the visible object in the image is encoded in the pattern of glyphs using rows of interleaved and offset address codes. The Office

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Action fails to state the portion of either the Chang or Schuessler references that discloses the use of a pattern of glyphs using rows of interleaved and offset address codes. No mention could be found of rows of interleaved and offset address codes in the very detailed description of the formatting of the embedded data used in Chang (see e.g., cols. 4 – 14 and accompanying figures.) Since the Schuessler reference is a visible 2D bar code, it does not teach encoding the location of the visible object in the image in the pattern of glyphs using rows of interleaved and offset address codes.

Claim 20 and 23 are directed to a computer-controlled method and apparatus respectfully, wherein the coded embedded data further includes label data encoded within the rows of interleaved and offset address codes; and wherein retrieving the human-sensible information further includes using the label data to identify the human-sensible information associated with the visible object. The Office Action fails to state the portion of either the Chang or Schuessler references that discloses the use of a pattern of glyphs using rows of interleaved and offset address codes that also encodes label data in addition to the location data. As noted above, no mention could be found of rows of interleaved and offset address codes in the very detailed description of the formatting of the embedded data used in Chang (see e.g., cols. 4 – 14 and accompanying figures.) Chang also very specifically discloses the encoding of a URL and makes no mention of any other data (e.g., label data) that is encoded in the pattern of glyphs. Since the Schuessler reference is a visible 2D bar code, it does not teach encoding either the location of the visible object in the image or label data in the pattern of glyphs using rows of interleaved and offset address codes.

For the foregoing reasons, is believed that dependent claims 19, 20, 22 and 23 include limitations that are not taught in the Chang and Schuessler disclosures, are believed to be patentably distinct over and are not obvious in view of the cited references, and are believed to be in condition for allowance. It is

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respectfully requested that the Advisory Action indicate that claims 19 – 20 and 22 – 23 contain allowable subject matter.
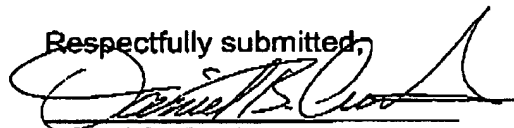
Reconsideration Requested

The undersigned respectfully submits that; in view of the foregoing amendments and remarks, the rejections of the claims raised in the Office Action dated December 19, 2003 have been fully addressed and overcome, and the present application is believed to be in condition for allowance. It is respectfully requested that this application be reconsidered, that these claims be allowed, and that this case be passed to issue.

No additional fee is believed to be required for this amendment. However, the undersigned Xerox Corporation attorney hereby authorizes the charging of any necessary fees, other than the issue fee, to Xerox Corporation Deposit Account No. 24-0025. This also constitutes a request for any needed extension of time and authorization to charge all fees therefor to Xerox Corporation Deposit Account No. 24-0025.

In the event the Examiner considers personal contact advantageous to the disposition of this case, he is hereby authorized to call Applicant's attorney, Daniel B. Curtis, at Telephone Number (650) 812-4259, Palo Alto, California.

Respectfully submitted,

Daniel B. Curtis
Attorney for Applicant(s)
Registration No. 39,159
Telephone: 650-812-4259

Date: 2/17/04